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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/554,629	10/11/2000	Shinji Nakahara	00336/LH	6434

7590 03/03/2003
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EXAMINER

KACKAR, RAM N

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 03/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/554,629	Applicant(s) NAKAHARA ET AL.
	Examiner Ram N Kackar	Art Unit 1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2 Claims 1 and 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai Susumu et al (JP 9-13172) in view of Tsunashima et al (US5605574).

Arai discloses a CVD apparatus with a wafer supporting mechanism containing four lift pins placed equiangularly (Fig 2) along a circumference and having resilient means for each lift pin (Fig 1-45).

As Arai discloses a CVD apparatus it would be obvious to have heating means.

Arai does not disclose the resilient mechanism to be made from quartz or silicon carbide.

Tsunashima et al disclose resilient wafer support structure (Fig 2B and Col 3 lines54-58) made of Silicon Carbide.

There fore it would have been obvious to one having ordinary skill in the art at the time invention was made to use a resilient support of Silicon Carbide for its excellent and stable operation at high temperature in order to reduce possibility of crystal defect due to slip.

3 Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai Susumu et al (JP 9-13172) in view of Tsunashima et al (US5605574) as applied to claim 1 and further in view of Shin Taira et al.

Arai discloses a CVD apparatus with a wafer supporting mechanism containing four lift pins placed equiangularly (Fig 2) along a circumference and having resilient means for each lift pin (Fig 1-45).

Arai does not explicitly disclose the support in a certain orientation.

Shin Taira et al disclose a thermal processing apparatus and lift pin support according to <110> direction with respect to plane 100 of the wafer (Fig a-11).

There fore it would have been obvious to one having ordinary skill in the art at the time invention was made to orient the support pins for <110> direction so as to reduce the problem of slip.

4 Claims 5- 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yukio Komura (JP 4-370921) in view of Kishi Akihiro (JP 5-326676) and Tsunashima et al (US5605574) or Goodwin et al (US6183183 having effective filing date 1/16/1997 through parent application).

Yukio discloses a vapor growth device provided with heating means (Fig 1- 35,36) and obliquely held wafer holders (Fig 2), rotating means (Fig 2- 40,42 and abstract), the wafers being held in the recess in the wafer holders facing inner wall surface (Fig 3 68a).

Yukio Komura does not disclose that the wafers are held so that there is a holding force acting on the peripheral edge of the wafer through contact means and that the resilient means are made from quartz or Silicon Carbide.

Kishi Akihiro discloses resilient clamping means, which provide means to hold the wafers by exerting force towards a center of the wafer (Fig 2 and 3)

Tsunashima et al disclose the resilient means of Silicon Carbide (Fig 2b and Col 3 lines 54-58) and Goodwin et al disclose resilient mounting means of Quartz (Col 12 lines 7-10).

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to use the resilient mechanism of Silicon carbide or quartz to hold wafers in place so that they may not fall off during rotation and be stable even at high temperature.

Response to Amendment

5 Applicant's arguments filed 2/11/2003 have been fully considered but they are not persuasive.

Applicant has asserted that dependent claim 4 after being written in independent form should be allowable. But, as the claim has been amended after adding a further limitation in the alternative, "or SiC" before being written in independent form, it is no longer allowable. Similarly applicant's addition of resilient means of SiC and quartz elsewhere has not made them patentable as these are known in the prior art.

Conclusion

6 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 6113349 and 6133121.

7 Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

February 26, 2003


BENJAMIN L. UTECH
SUPERVISORY PATENT EXAMINER
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